Superseded by PS39-70

WITHDRAWN

Commercial Standard · 1-52

SUPERSEDES CS1—42

Clinical Thermometers

A RECORDED VOLUNTARY STANDARD OF THE TRADE

COMMODITY STANDARDS

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Industry and Commerce, Bureau of Foreign and Domestic Commerce, and with the National Bureau of Standards.

The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform bases for fair competition.

The adoption and use of a Simplified Practice Recommendation or a Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or a Commercial Standard originates with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The Division, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Division assures continuous servicing of each effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action. Simplified Practice Recommendations and Commercial Standards are printed and made available by the Department of Commerce through the Government Printing Office and the Department of Commerce field offices.

UNITED STATES DEPARTMENT OF COMMERCE

Charles Sawyer, Secretary

Clinical Thermometers

(FOURTH EDITION)

[Effective January 16, 1952]

1. PURPOSE

1.1 The purpose of this commercial standard is to provide a specification and methods for testing clinical thermometers as a basis for certification of compliance with a nationally recognized standard of quality and accuracy, and to promote fair competition among manufacturers.

2. SCOPE

2.1 This standard applies to maximum self-registering, mercury-in-glass thermometers of the types commonly used for measuring body temperatures. The certificate specified in section 5 of this standard, when issued by a manufacturer, or certification by a testing laboratory that a thermometer has been found to meet the requirements of this standard, means that the thermometer has been examined and tested and has been found to meet the construction and performance requirements, and has passed the tests specified. The requirements and tests may be outlined as follows:

Construction.
Aging.
Test for entrapped gas.
Test for hard shakers.
Test for accuracy.
Test for retreating index.
Test for permanence of pigment.

3. CONSTRUCTION REQUIREMENTS

3.1 *Bulb glass.*—The bulbs shall be made of Corning Normal glass or equal, having a softening point of 702° ± 5° C and a coefficient of expansion of 86 (± 2) × 10^{-7} cm/cm/°C.

3.2 *Stem glass.*—The glass used for stems shall be Corning standard thermometer lead glass or equal, having a softening point of 648° ± 5°C and a coefficient of expansion of 85 (± 2) × 10^{-7} cm/cm/°C.

3.3 There shall be not more than 9.0° F per inch of scale. The over-all length, excluding cap, if any, shall be 3⅞ inches, minimum.

3.4 The range of scale shall be at least from 96° to 106° F, or from 35° to 41° C. The 96.0° F mark shall be not less than ⅜ inch

U. S. DEPARTMENT OF COMMERCE

CHARLES SAWYER, Secretary

BUREAU OF FOREIGN AND DOMESTIC COMMERCE

Office of Industry and Commerce

H. B. McCOY, Director

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from the top of the constriction; that is, from the point at which the capillary resumes its normal shape above the constriction. The 106° F mark shall be at least 3/8 inch from the end of the thermometer, or 1/8 inch below any part of any cap attached to the thermometer and at least 1/8 inch from the end of the bore.

3.5 Fahrenheit thermometers shall be graduated in 0.2° F; each degree mark and the mark at 98.6° shall be longer than the intervening marks.[1] Numerals shall be placed at every even-degree mark, at least.

3.6 Centigrade (Celsius) thermometers shall be graduated in 0.1° C; each degree and half-degree mark shall be longer than the intervening marks. Numerals shall be placed at every degree mark, at least. The centigrade (Celsius) temperatures corresponding to the various Fahrenheit temperatures throughout this standard are listed in table 1, page 4.

3.7 The graduation marks shall be substantially straight, regularly spaced, of uniform width, perpendicular to the axis of the stem, and not wider than the spaces between the graduations nor wider than 0.012 inch, and not narrower than 0.004 inch.

3.8 Each thermometer shall bear in legible characters the name or trade-mark of the manufacturer, and either a serial number, or a serial number and year, to provide complete identification.

3.9 All marks, numerals, and identification marks shall be made readily legible, in some way, as by the use of pigment. All thermometers shall retain their pigment after the completion of all tests specified in this standard. Thermometers shall be examined for extent of pigmentation before the test; and loss or absence of pigment from one complete graduation or numeral, or from the equivalent of one long graduation, shall be cause for rejection.

3.10 The graduation at 98.6° shall be designated by an arrow or other suitable mark within a tolerance of plus or minus one-half scale division.

3.11 Each thermometer shall exhibit creditable workmanship that will permit certification under the remaining sections of this standard. Constructional defects shall not prevent observations of temperature within a tolerance of ±0.2° F in the range 96° to 104° F, and within ±0.3° F in the range 104° to 106° F. The presence of unhealed fire cracks or fractures shall be evidence of discreditable workmanship.

3.12 *Aging.*—All thermometers shall be aged by either natural or artificial means, so that the performance requirements involved will be met after the thermometer has been introduced into commerce. The natural method involves holding the thermometer at room temperature for a period of 4 months after completion of the constriction. The artificial method involves heat treatment of bulb and constriction at a temperature of at least 840° F for at least 3 hours, followed by cooling to 500° F at a rate not to exceed 100° F per hour. Any other method approved by the standing committee may be used.

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[1] The requirements of this standard shall not preclude the manufacture and sale of special thermometers having different ranges and degrees of subdivision designed for specific uses; for example, for tubercular cases or for ovulation temperature measurements.

4. PERFORMANCE REQUIREMENTS AND METHODS OF TEST

4.1 *Gas in mercury column.*

4.1.1 Thermometers in which visual inspection shows the presence of gas in the bulb shall be rejected.

4.1.2 All thermometers in which there is sufficient gas or other foreign material to cause separation in the mercury column above the constriction during shipment, test, or use shall be rejected. To test for this, the thermometer shall be shaken down (if necessary) as in paragraph 4.2.1, then heated so that the reading is 102° F. The mercury shall be shaken away from the bulb in a centrifuge at 200 rpm with the top of the thermometer 32 cm from the axis of rotation. A broken mercury column above the constriction shall be an indication that there is gas or other foreign material present in sufficient quantity to justify rejection. In this test, if the mercury column above the constriction is found removed from the constriction, but is in one uninterrupted piece, this shall not be evidence of a broken mercury column.

4.2 *Hard shakers.*

4.2.1 All thermometers, after having been heated to 106° F, shall be mounted in a centrifuge and whirled at the specified speed. For a centrifuge in which the ends of the bulbs are 17 cm from the axis of rotation, the specified speed is 580 rpm. For a centrifuge in which the ends of the bulbs are 32 cm from the axis of rotation, the specified speed is 400 rpm. The larger type is preferred. When whirled at the specified speed, the index shall fall below 96° F.

4.2.2 It is not necessary to heat and shake down the thermometers especially for this test, since these operations are performed during the test for accuracy. The thermometers may therefore be examined to determine whether the index has fallen below 96° F after they have been shaken down in the test for accuracy.

4.3 *Accuracy.*

4.3.1 Thermometers shall be compared at 98°, 102°, and 106° F, with certified clinical standards, by heating them in a well-stirred water bath, removing from bath, and reading. Thermometers not graduated above 106° F which give readings above 106° F may be retested at 105.6° F to reduce the uncertainty in determining the error. The temperature of the bath shall be raised at a substantially uniform rate during the last 2 minutes before the test temperature is reached and the rise during this 2-minute period shall be not more than 0.2° F. The thermometers shall be removed from the bath as soon as the temperature of test is reached, except in the second test at 106° F, where the procedure specified under section 4.4, "Retreating index," shall be followed. The readings shall be observed after removal from the bath.[2]

[2] In making the readings, allowance should be made for the width of the graduation marks. Take, for example, a Fahrenheit thermometer in which the width of the mark is 0.4 of the length of a graduation interval. The interval is 0.2°, so that the width of the mark corresponds to 0.08°. In such a thermometer, if the top of the mercury column is opposite the middle of the 102° mark, the reading would be 102.00°, whereas if it were opposite the lower edge of the mark, the reading would be 101.96°, and if opposite the upper edge, the reading would be 102.04°. A fine mark on a thermometer with a very open scale, say 10° F in a scale length of 2 inches, would have a width corresponding to about 0.02° F, whereas the width of a broad mark on a thermometer having 9° F to 1 inch, would correspond to about 0.1° F.
The use of the method of reading to one-tenth division or better is implied in section 4.3, and uniform and satisfactory use of these tests depends upon using this method of reading.

4.3.2 Two independent comparisons shall be made on each thermometer at each test temperature. No individual reading, in comparison with the certified standard, shall be in error by more than ±0.20° F at 98° F and 102° F, nor by more than ±0.30° F at 106° F, and the two readings at 98° and 102° F shall not differ from each other by more than 0.20° F; except as provided in paragraph 4.3.3, the two readings at 106° F shall not differ from each other by more than 0.30° F.

4.3.3 If either reading at one and only one test temperature is in error by more than the tolerance specified in paragraph 4.3.2, or if the readings at one and only one test temperature differ from each other by more than the tolerance specified in paragraph 4.3.2, the thermometer shall be completely retested for accuracy. If on retest the thermometer fails to meet the requirements of paragraph 4.3.2, it shall be rejected.

4.4 *Retreating index.*

4.4.1 In one of the tests for accuracy at 106° F, the thermometers are removed from the bath as soon as the test temperature is reached. In the other test at 106° F, the bath is brought up to the test temperature and then allowed to cool slowly to 105° F or below, at a uniform rate not exceeding 1° F in 3 minutes. The thermometers are then removed from the bath and read. The two readings shall not differ from each other by more than 0.30° F.

4.5 *Retention of pigment.*

4.5.1 Thermometers shall be immersed in a 5-percent (by weight) phenol-in-water solution for a period of 1 hour, at a temperature between 70° and 90° F, without the indication of removal of the coloring matter or its appearance in the solution. All thermometers shall retain their pigment as specified in paragraph 3.9 after the completion of all tests herein required.

4.5.2 When testing lots of more than 100 thermometers of the same brand, it is not necessary to submit each individual thermometer to the phenol test; a sample of 100 thermometers selected at random shall be tested. The lot may be considered to have passed the phenol test if not more than 2 percent of the representative sample taken from the lot fails in this test.

TABLE 1. *Centigrade temperatures*

Paragraph number	°F	°C	Paragraph number	°F	°C
3.3	9.0	5.0	4.3.1	98	37
				102	39
3.4	96	35.5		105.6	40.8
	106	41		106	41
				0.2	0.1
3.10	98.6	37			
			4.3.2	0.20	0.11
3.11	96	35		.30	.17
	104	40		98	37
	106	41		102	39
	0.2	0.1		106	41
	.3	.15			
			4.4.1	106	41
4.1.2	102	39		105	40.5
				1	0.55
4.2.1	106	41		0.30	.17
	96	35.5			

5. CERTIFICATE

5.1 Each thermometer certified by the manufacturer shall be accompanied by a certificate which shall include the following statement or its equivalent:

> We, the undersigned manufacturers, hereby certify that this registering clinical thermometer marked
>
> .....
>
> (Manufacturer's trade mark or brand name)
>
> has been examined and tested and found to meet all the requirements and tests specified in Commercial Standard CS1–52, as developed by the trade under the procedure of the Commodity Standards Division, and issued by the United States Department of Commerce.
>
> .....
>
> (Company)
>
> .....
>
> (Address)

5.2 When thermometers are sold to hospitals or similar institutions, the above statement on the invoice is acceptable in lieu of a certificate with each thermometer.

6. EFFECTIVE DATE

6.1 Having been passed through the regular procedure of the Commodity Standards Division, and approved by the acceptors hereinafter listed, this commercial standard was issued by the United States Department of Commerce, effective from January 16, 1952.

EDWIN W. ELY,
Chief, Commodity Standards Division.

HISTORY OF PROJECT

General conference.—On November 18, 1927, a committee representing the Associated Thermometer Manufacturers, a group of manufacturers of clinical thermometers, requested the assistance of the National Bureau of Standards in establishing a commercial standard for clinical thermometers, to encourage the production and sale of reliable thermometers, and to protect purchasers from inferior and unreliable instruments. Preliminary conferences held in New York City on December 15, 1927, and February 24, 1928, drafted a proposed standard based on tests then in use by the National Bureau of Standards. A general conference held in Washington, D. C., on March 30, 1928, adopted the proposal, with some modifications, and a recommended commercial standard was circulated to the industry for written acceptance on April 18, 1928. On June 12 the National Bureau of Standards announced that sufficient acceptances had been received and that the commercial standard, designated CS1-28, would become

effective for new production on October 1, 1928, and for clearance of existing stocks on March 30, 1929.

On November 23, 1929, an adherence survey was conducted, which indicated that approximately 82 percent of production was being manufactured in conformity with the standard. The standard was reaffirmed in its existing form on March 4, 1930.

First revision.—On February 19, 1931, a well-attended meeting of the advisory committee, composed of manufacturers of clinical thermometers and representatives of the National Bureau of Standards, was held in New York City to discuss the advisability of revising the commercial standard and to suggest a desirable form of revision. An adherence survey conducted in September of that year showed a reported 79 percent of adherence, and resulted in numerous suggestions for the improvement of the standard.

A strong desire was expressed for coordination of the commercial standard with regulations enforced by various States and municipalities. Accordingly, a meeting of representatives of the standing committee with representatives of the regulatory bodies was held in New York City on January 12, 1932. As a result of this meeting, a recommended revision was drafted by the standing committee and circulated to the industry for acceptance on February 24, 1932. On March 30, 1932, the establishment of the revision was announced, and the second edition, designated CS1-32, became effective for new production on June 1, 1932.

Second revision.—On February 20, 1940, the standing committee met in New York City to consider suggestions for revision that had been received since the establishment of the second edition of the standard. At that meeting a proposed revision tightening tolerances on accuracy and requiring that records of test be held on file for 2 years was drafted and submitted to the manufacturers' advisory committee on March 21, 1940. On March 14, 1941, a meeting of the advisory committee drafted a counter proposal that the standing committee considered at a meeting on May 15, 1941. The standing committee was unable to accept the counter proposal in its entirety and reverted to its original proposal which, with some modifications, it recommended be circulated to the industry for acceptance. The recommended revision was circulated to producers, distributors, and users for acceptance on October 17, 1941. Upon receipt of acceptances estimated to represent adequate support, an announcement was issued on January 20, 1942, that the revision, designated CS1-42, third edition, would become effective for new production from February 20, 1942.

Third revision.—On June 20, 1949, a meeting of the manufacturers' advisory committee in New York City proposed a revision of CS1-42, Clinical Thermometers (Third Edition). The following day the standing committee met and approved the proposed revision, but representatives of the American Hospital Association desired further consideration of some provisions, and met with the chairman of the standing committee and representatives of the National Bureau of Standards in Washington on September 21.

On December 2, 1949, and June 21, 1950, special meetings of the manufacturing members of the standing committee, representatives of the American Hospital Association and of the National Bureau of Standards, and members of the Technical Committee on Thermometers of the Federal Specifications Board were held in New York City. At those meetings, the previous draft was modified to meet the desires of the American Hospital Association, and also to provide for agreement of the commercial standard with a contemplated revision of Federal Specification GG-T-311.

The proposal as drafted at those special meetings was reviewed and approved with a few minor modifications by a meeting of the manufacturers' advisory committee on October 2, 1950. After approval of the draft by letter ballot of the standing committee, the recommended commercial standard was circulated to the industry for acceptance on April 25, 1951. On the following July 16, the Commodity Standards Division issued an announcement that acceptances had been received representing a satisfactory majority, and that the fourth edition of the standard, designated CS1-52, would become effective from January 16, 1952.

Project Manager: F. W. Reynolds, Commodity Standards Division, Office of Industry and Commerce.
Technical Adviser: Dr. Raymond E. Wilson, Heat and Power Division, National Bureau of Standards.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Commodity Standards Division, Office of Industry and Commerce, U. S. Department of Commerce, which acts as secretary for the committee.

DR. ROBERT D. THOMPSON, Taylor Instrument Companies, P. O. Box 110, Rochester 1, N. Y. (Chairman).
OTTO W. SCHLEGELMILCH, Schlegelmilch Bros., 31-31 Thomson Ave., Long Island City, N. Y.
PETER J. PECORELLA, Pecorella Manufacturing Co., 1755 Bushwick Ave., New York, N. Y.
E. A. KESSLING, E. Kessling Thermometer Co., Inc., 682 Jamaica Ave., Brooklyn, N. Y.
JOSEPH MENDES, Fulton Thermometer Co., 387 Lexington Ave., Brooklyn 16, N. Y.
DR. FRIEND LEE MICKLE, Bureau of Laboratories, Connecticut State Department of Health, Hartford, Conn.
D. H. PALMER, Hospital Bureau of Standards & Supplies, Inc., 247 Park Ave., New York, N. Y. (representing American Hospital Association).
DR. GEORGE MORRIS PIERSOL, University Hospital, University of Pennsylvania, Philadelphia 4, Pa. (representing Consultants on Clinical Thermometry of the American Hospital Association).
DR. IRVIN KERLAN, Drug Division, Food and Drug Administration, Federal Security Agency, Washington 25, D. C.
DR. R. E. WILSON, National Bureau of Standards, Washington 25, D. C.
HERBERT M. BINGHAM, Tower Building, Washington, D. C. (representing National Wholesale Druggists Association).

ACCEPTORS

The organizations listed below have individually accepted this standard for use as far as practicable in the production, distribution, testing, purchase, or use of clinical thermometers. In accepting the standard they reserved the right to depart from it as they individually deem advisable. It is expected that articles which actually comply with the requirements of this standard in all respects will be regularly identified or labeled as conforming thereto, and that purchasers will require such specific evidence of conformity.

ASSOCIATIONS

(General Support)

American Clinical Thermometer Guild, Inc., New York, N. Y.
American Hospital Association, Chicago, Ill.
American Medical Association, Philadelphia, Pa.
Cleveland Hospital Council, Cleveland, Ohio.
Hospital Bureau of Standards and Supplies, Inc., New York, N. Y.

FIRMS, HOSPITALS, AND OTHER INTERESTS

Abington Memorial Hospital, Abington, Pa.
Alexian Brothers Hospital, Elizabeth, N. J.
Allentown Hospital Association, Allentown, Pa.
Altoona Hospital, Altoona, Pa.
Ancker Hospital, St. Paul, Minn.
Anoka State Hospital, Anoka, Minn.
Arlington Hospital, Arlington, Va.
Ashland State Hospital, Ashland, Pa.
Associated Medical Products Co., New York, N. Y.
Atlantic City Hospital, Atlantic City, N. J.
Baltimore City Hospitals, Baltimore, Md.
Barlow Sanatorium Association, Los Angeles, Calif.
Barnard Free Skin and Cancer Hospital, St. Louis, Mo.
Baroness Erlanger Hospital, Chattanooga, Tenn.
Becton, Dickinson & Co., Rutherford, N. J.
Belle Glade Memorial Hospital, Belle Glade, Fla.
Belmont Hospital, Worcester, Mass.
Beloit Municipal Hospital, Beloit, Wis.
Berea College Hospital, Berea, Ky.
Beth Israel Hospital, Boston, Mass.
Beth Israel Hospital, New York, N. Y.
Bethesda Hospital, Cincinnati, Ohio.
Bledsoe Memorial Hospital, Pikeville, Tenn.
Blodgett Memorial Hospital, Grand Rapids, Mich.
Bloomsburg Hospital, Bloomsburg, Pa.
Blossburg State Hospital, Blossburg, Pa.
Boston Dispensary, Boston, Mass.
Boulder Sanitarium & Hospital, Boulder, Colo.
Braddock General Hospital, Braddock, Pa.
Brooklyn Hospital, Brooklyn, N. Y.
Brooks Memorial Hospital, Dunkirk, N. Y.
Bryn Mawr Hospital, Bryn Mawr, Pa.
Buffalo General Hospital, Buffalo, N. Y.
Burbank Hospital, Fitchburg, Mass.
California Hospital, Los Angeles, Calif.
Carney Hospital, South Boston, Mass.
Central Dispensary & Emergency Hospital, Washington, D. C.
Central of Georgia Railway Co., Savannah, Ga.
Central Maine General Hospital, Lewiston, Maine.
Central Maine Sanatorium, Fairfield, Maine.
Central State Hospital, Petersburg, Va.
Chestnut Hill Hospital, Philadelphia, Pa.
Children's Hospital, Columbus, Ohio.
Children's Hospital, Inc., St. Paul, Minn.
Children's Hospital of the District of Columbia, Washington, D. C.
Children's Hospital of Philadelphia, Philadelphia, Pa.
Children's Hospital of Pittsburgh, Pittsburgh, Pa.
Christ Hospital, Cincinnati, Ohio.
City Infirmary, St. Louis, Mo.
City Memorial Hospital, Winston Salem, N. C.
Clearfield Hospital, Clearfield, Pa.
Coaldale State Hospital, Coaldale, Pa.
Colorado State Hospital, Pueblo, Colo.
Columbia Hospital, Astoria, Oreg.
Columbia Memorial Hospital, Hudson, N. Y.
Community Hospital, Berea, Ohio.
Community Hospital, Geneva, Ill.
Community Hospital, Kane, Pa.
Cooley Dickinson Hospital, Northampton, Mass.
Copper Country Sanatorium, Houghton, Mich.
Cornell Instrument Co., Brooklyn, N. Y.
Cortland County Hospital Association, Cortland, N. Y.
Creighton Memorial St. Joseph's Hospital, Omaha, Nebr.
Cumberland Medical Center, Crossville, Tenn.
D. T. Watson Home for Crippled Children, Leetsdale, Pa.
Dade County Hospital, South Miami, Fla.
Decatur & Macon County Hospital, Decatur, Ill.
Delaware State Hospital, Farnhurst, Del.
Detroit Tuberculosis Sanatorium, Detroit, Mich.
Díaz Martínez, Saúl, Vedado, Havana, Cuba.
Dittmar Thermometer Co., Hollis, L. I., N. Y.
Dixie Hospital, Hampton, Va.
Eastern State Hospital, Williamsburg, Va.
Easton Hospital, Easton, Pa.
Edward Sanatorium, Naperville, Ill.
Eisele & Co., Nashville, Tenn.
Elizabeth Steel Magee Hospital, Pittsburgh, Pa.
Emanuel Hospital, Portland, Oreg.
Emerald-Hodgson Hospital, Sewanee, Tenn.
Evanston Hospital Association, Evanston, Ill.
Faichney Instrument Corp., Watertown, N. Y.
Fairview Park Hospital, Cleveland, Ohio.
Faxton Hospital, Utica, N. Y.
Federation of Jewish Philanthropies of New York, New York, N. Y.
Fitzgerald-Mercy Hospital, Darby, Pa.
Florida State Improvement Commission, Tallahassee, Fla.
Fort Wayne Methodist Hospital, Fort Wayne, Ind.
Franklin County Public Hospital, Greenfield, Mass.
Fresno Community Hospital, Fresno, Calif.
Gem Thermometer Co., New York, N. Y.
General Hospital, Bluefield, W. Va.
Genesee Hospital, Rochester, N. Y.
Georgia Warm Springs Foundation, Warm Springs, Ga.
Germantown Hospital, Philadelphia, Pa.

Gifford Memorial Hospital, Inc., Randolph, Vt.
Glens Falls Hospital, Glens Falls, N. Y.
Grace Hospital, Cleveland, Ohio.
Grandview Hospital, LaCrosse, Wis.
Grant Hospital, Columbus, Ohio.
Greenwich Hospital Association, Greenwich, Conn.
Guardian Thermometer Co., Inc., New York, N. Y.
Guggenheimer Memorial Hospital, Lynchburg, Va.
Hahnemann Hospital, Scranton, Pa.
Halifax District Hospital, Daytona Beach, Fla.
Hamot Hospital Association, Erie, Pa.
Harlem Valley State Hospital, Wingdale, N. Y.
Harper Hospital, Detroit, Mich.
Harrisburg State Hospital, Harrisburg, Pa.
Healthwin Hospital, South Bend, Ind.
Henry County Hospital, New Castle, Ind.
Herrick Memorial Hospital, Berkeley, Calif.
High Point Memorial Hospital, High Point, N. C.
Highland Hospital, Rochester, N. Y.
Hospital for Joint Diseases, New York, N. Y.
Hospital of the Good Samaritan, Los Angeles, Calif.
Hospital of the Good Shepherd of Syracuse University, Syracuse, N. Y.
Hospital Purchasing Service of Pennsylvania, Philadelphia, Pa.
Hospital Supply & Watters Laboratories, New York, N. Y.
Hurley Hospital, Flint, Mich.
Hygrade Thermometer Co., Brooklyn, N. Y.
J. J. McCook Memorial Hospital, Hartford, Conn.
James Decker Munson Hospital, Traverse City, Mich.
Jamestown General Hospital, Jamestown, N. Y.
Jane Lamb Memorial Hospital, Clinton, Iowa.
Jewish Hospital, Cincinnati, Ohio.
Jewish Sanitarium & Hospital for Chronic Diseases, Brooklyn, N. Y.
Johns Hopkins Hospital, Baltimore, Md.
Kahler Corp., Rochester, Minn.
Kaye Thermometer Corp., Brooklyn, N. Y.
Kennestone Hospital, Marietta, Ga.
Kern General Hospital, Bakersfield, Calif.
Kessling, E., Thermometer Co., Inc., Brooklyn, N. Y.
La Mesa Community Hospital, La Mesa, Calif.
Laconia Hospital, Laconia, N. H.
Lafayette Home Hospital, Lafayette, Ind.
Lake County Memorial Hospital, Painesville, Ohio.
Lake County Tuberculosis Sanatorium, Waukegan, Ill.
Lakeville State Sanatorium, Middleboro, Mass.
Lankenau Hospital, Philadelphia, Pa.
Lawrence General Hospital, Lawrence, Mass.
Lenox Hill Hospital, New York, N. Y.
Lima Memorial Hospital, Lima, Ohio.
Long Island College Hospital, Brooklyn, N. Y.
Los Angeles, City of, Los Angeles, Calif.
Los Angeles County General Hospital, Los Angeles, Calif.
Lutheran Memorial Hospital of Newark, Newark, N. J.
Lynchburg General Hospital, Lynchburg, Va.
Lynn Hospital, Lynn, Mass.
Manhattan Eye, Ear & Throat Hospital, New York, N. Y.
Marcy State Hospital, Marcy, N. Y.
Mary Fletcher Hospital, Burlington, Vt.
Mary Hitchcock Memorial Hospital, Hanover, N. H.
Mary Imogene Bassett Hospital, Cooperstown, N. Y.
Massachusetts Memorial Hospitals, Boston, Mass.
Massillon City Hospital, Massillon, Ohio.
Maumee Valley Hospital, Toledo, Ohio.
McPheeters Hospital, Modesto, Calif.
Meinecke & Co., Inc., New York, N. Y.
Memorial Hospital of DuPage County, Elmhurst, Ill.
Memorial Hospital, Roxborough, Philadelphia, Pa.
Mercy Hospital, Bakersfield, Calif.
Mercy Hospital, Baltimore, Md.
Mercy Hospital, Bay City, Mich.
Mercy Hospital, Urbana, Ill.
Mercy Hospital of Canton, Canton, Ohio.
Mercy Hospital of Johnstown, Johnstown, Pa.
Methodist Hospital, Philadelphia, Pa.
Miami Valley Hospital, Dayton, Ohio.
Michael Reese Hospital, Chicago, Ill.
Michigan State Sanatorium, Howell, Mich.
Middlesex Hospital, Middletown, Conn.
Middletown State Hospital, Middletown, N. Y.
Millard Fillmore Hospital, Buffalo, N. Y.
Mills Memorial Hospital, San Mateo, Calif.
Milwaukee County Hospital, Milwaukee, Wis.
Milwaukee Sanitarium, Wauwatosa, Wis.
Miriam Hospital, Providence, R. I.
Misericordia Hospital, Philadelphia, Pa.
Monmouth Memorial Hospital, Long Branch, N. J.
Moose Lake State Hospital, Moose Lake, Minn.
Morgan County War Memorial Hospital, Berkeley Springs, W. Va.
Morristown Memorial Hospital, Morristown, N. J.
Mount Auburn Hospital, Cambridge, Mass.
Mount Carmel Hospital, Columbus, Ohio.
Mount Sinai Hospital, Hartford, Conn.
Mount Sinai Hospital, New York, N. Y.
Mount Vernon Hospital, Mount Vernon, N. Y.
Nashville General Hospital, Nashville, Tenn.
Nathan Littauer Hospital, Gloversville, N. Y.
National Jewish Hospital at Denver, Denver, Colo.
Nebraska Orthopedic Hospital, Lincoln, Nebr.
New Castle Hospital, New Castle, Pa.
New England Hospital, Roxbury, Mass.
New York Hospital, New York, N. Y.
New York Medical College, Flower and Fifth Avenue Hospital, New York, N. Y.
New York Psychiatric Institute, New York, N. Y.
New York Thermometer Industries, New York, N. Y.
Newark Beth Israel Hospital, Newark, N. J.
Newark Hospital Association, Newark, Ohio.
Newton-Wellesley Hospital, Newton Lower Falls, Mass.
Niagara Falls Memorial Hospital, Niagara Falls, N. Y.
Niagara Sanatorium, Lockport, N. Y.
Norfolk County Hospital, South Braintree, Mass.
North Country Community Hospital, Glen Cove, N. Y.
Northern Michigan Tuberculosis Sanatorium, Gaylord, Mich.
Norwich State Hospital, Norwich, Conn.
Oil City Hospital, Oil City, Pa.
Oklahoma State Veterans Hospital, Sulphur, Okla.
Orange Memorial Hospital, Orange, N. J.
Orange Memorial Hospital, Orlando, Fla.
Our Lady of Mercy Hospital, Cincinnati, Ohio.
Overlook Hospital, Summit, N. J.
Passaic General Hospital, Passaic, N. J.
Passavant Hospital, Pittsburgh, Pa.
Paterson General Hospital, Paterson, N. J.
Patton Memorial Hospital, Hendersonville, N. C.
Pecorella Manufacturing Co., Brooklyn, N. Y.
Pennsylvania Department of Health, T. B. Sanatorium, South Mountain, Pa.
Pennsylvania Hospital, Philadelphia, Pa.
Pennsylvania State Sanatorium for Tuberculosis No. 3, Hamburg, Pa.
Peter Bent Brigham Hospital, Boston, Mass.
Phoenix Medical Center, Department of Interior, Phoenix, Ariz.
Pima County General Hospital, Tucson, Ariz.
Premo Pharmaceutical Laboratories, Inc., South Hackensack, N. J.
Presbyterian Hospital, Denver, Colo.
Presbyterian Hospital, Pittsburgh, Pa.
Princeton Hospital, Princeton, N. J.
Providence Hospital, Detroit, Mich.
Providence Hospital, Washington, D. C.

Providence Memorial Hospital, El Paso, Tex.
Provident Hospital & Training School, Chicago, Ill.
Queen's Hospital, Honolulu, T. H.
Reid Memorial Hospital, Richmond, Ind.
Research Hospital, Kansas City, Mo.
Retreat State Hospital, Retreat, Pa.
Río Piedras Tuberculosis Hospital, Río Piedras, P. R.
Riverview Hospital, Wisconsin Rapids, Wis.
Robert Packer Hospital, Sayre, Pa.
Roosevelt Hospital, New York, N. Y.
Ross, Will, Inc., Milwaukee, Wis.
Sacred Heart Hospital, Allentown, Pa.
St. Alphonsus Hospital, Boise, Idaho.
St. Elizabeth's Hospital, Brighton, Mass.
St. Francis Hospital, Hartford, Conn.
St. Francis Hospital, Honolulu, T. H.
St. Francis Hospital, Inc., Miami Beach, Fla.
St. Francis Xavier Infirmary, Charleston, S. C.
St. Joseph Hospital, Lexington, Ky.
St. Joseph Hospital, Orange, Calif.
St. Lucas Deaconess Hospital, Faribault, Minn.
St. Luke's Hospital, Cleveland, Ohio.
St. Luke's Hospital, Davenport, Iowa.
St. Luke's Hospital, Milwaukee, Wis.
St. Luke's Hospital, New Bedford, Mass.
St. Luke's Hospital, Newburgh, N. Y.
St. Luke's Hospital, St. Louis, Mo.
St. Margaret's Hospital, Kansas City, Kans.
St. Mary's Hill, Milwaukee, Wis.
St. Mary's Hospital, Green Bay, Wis.
St. Peter Hospital, Olympia, Wash.
St. Thomas Hospital, Akron, Ohio.
St. Vincent Hospital, Billings, Mont.
St. Vincent Infirmary, Little Rock, Ark.
St. Vincent's Hospital, Indianapolis, Ind.
St. Vincent's Hospital, Philadelphia, Pa.
St. Vincent's Hospital, Portland, Oreg.
Salinas Valley Memorial Hospital District, Salinas, Calif.
Samaritan Hospital, Troy, N. Y.
San Diego County General Hospital, San Diego, Calif.
San Francisco Hospital, San Francisco, Calif.
Schneider, R. F., Jersey City, N. J.
Schrader's, H., Sons, Brooklyn, N. Y.
Sears, Roebuck & Co., Chicago, Ill.
Seaside Memorial Hospital, Long Beach, Calif.
Seattle, City of, Seattle, Wash.
Sewickley Valley Hospital, Sewickley, Pa.
Shawnee Indian Sanatorium, Shawnee, Okla.
Sisters' Hospital, Waterville, Maine.
Soldiers' Home in Massachusetts, Chelsea, Mass.
Somerset City Hospital, Somerset, Ky.
South Nassau Communities Hospital, Rockville Centre, N. Y.
South Shore Hospital, South Weymouth, Mass.
Southern Pacific General Hospital, San Francisco, Calif.
Spangler, Chas. H., Catasauqua, Pa.
State Sanatorium, Oakdale, Iowa.
Staten Island Hospital, New York, N. Y.
Strong Memorial Hospital, Rochester, N. Y.
Sunny Acres Cuyahoga County Tuberculosis Hospital, Cleveland, Ohio.
Sutter Hospitals of Sacramento, Sacramento, Calif.
Swedish Hospital, Seattle, Wash.
Syracuse Memorial Hospital, Syracuse, N. Y.
Tampa Municipal Hospital, Tampa, Fla.
Taylor Instrument Cos., Rochester, N. Y.
Theda Clark Memorial Hospital, Neenah, Wis.
Toledo Hospital, Toledo, Ohio.
Tompkins County Memorial Hospital, Ithaca, N. Y.
Trinity Hospital, Minot, N. Dak.
Truesdale Hospital, Inc., Fall River, Mass.
Trumbull Memorial Hospital, Warren, Ohio.
Tuberculosis League Hospital, Pittsburgh, Pa.
University of Arkansas School of Medicine Hospital, Little Rock, Ark.
University of Chicago Clinics, Chicago, Ill.
University of Colorado, Department of Medicine, Denver, Colo.
University of Kansas Medical Center, Kansas City, Kans.
University of Minnesota Hospital, Minneapolis, Minn.
Warren A. Candler Hospital, Savannah, Ga.
Washington County Hospital, Hagerstown, Md.
Waterbury Hospital, Waterbury, Conn.
Watts Hospital, Durham, N. C.
Waverly Hills Tuberculosis Sanatorium, Waverly Hills, Ky.
Wayne County General Hospital, Eloise, Mich.
Waynesboro Hospital, Waynesboro, Pa.
Weld County Hospital, Greeley, Colo.
Wesley Memorial Hospital, Chicago, Ill.
White Plains Hospital Association, White Plains, N. Y.
Wichita General Hospital, Wichita Falls, Tex.
Wills Eye Hospital, Philadelphia, Pa.
Woman's Hospital in the State of New York, New York, N. Y.

UNITED STATES GOVERNMENT

Agriculture, U. S. Department of, Division of Procurement and Property Management, Washington, D. C.
Army, U. S. Department of, Office of Assistant Chief of Staff, Washington, D. C.
Commerce, U. S. Department of, National Bureau of Standards, Washington, D. C.

CS1-52

ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date _____

Commodity Standards Division,
Office of Industry and Commerce,
U. S. Department of Commerce,
Washington 25, D. C.

Gentlemen:

We believe that this Commercial Standard constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

Production [1] Distribution [1] Purchase [1] Testing [1]

of clinical thermometers.

We reserve the right to depart from it as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

(Cut along this line)

Signature of authorized officer _____
(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer _____

Organization _____
(Fill in exactly as it should be listed)

Street address _____

City, zone, and State _____

[1] Underscore which one. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General support" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish, for specific commodities, nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard, where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

COMMERCIAL STANDARDS

CS No.

0. Commercial standards and their value to business.
1. Clinical thermometers.
2. Mopsticks.
3. Stoddard solvent.
4. Staple porcelain (all-clay) plumbing fixtures.
5. Pipe nipples; brass, copper, steel and wrought-iron.
6. Wrought-iron pipe nipples. Superseded by CS5.
7. Standard weight malleable iron or steel screwed unions.
8. Gage blanks.
9. Builders' template hardware.
10. Brass pipe nipples. Superseded by CS5.
11. Moisture regains of cotton yarns.
12. Fuel oils.
13. Dress patterns.
14. Boys' sport and dress shirt (woven fabrics) size measurements.
15. Men's pajama sizes (made from woven fabrics).
16. Wallpaper.
17. Diamond core drill fittings.
18. Hickory golf shafts.
19. Foundry patterns of wood.
20. Vitreous china plumbing fixtures.
21. Interchangeable ground-glass joints, stopcocks, and stoppers.
22. Builders' hardware (nontemplate).
23. Feldspar.
24. Screw threads and tap-drill sizes.
25. Special screw threads. Superseded by CS24.
26. Aromatic red cedar closet lining.
27. Mirrors.
28. Cotton fabric tents, tarpaulins and covers.
29. Staple seats for water-closet bowls.
30. (Withdrawn.)
31. Wood shingles.
32. Cotton cloth for rubber and pyroxylin coating.
33. Knit underwear (exclusive of rayon).
34. Bag, case, and strap leather.
35. Hardwood plywood.
36. Fourdrinier wire cloth.
37. Steel bone plates and screws.
38. Hospital rubber sheeting.
39. (Withdrawn.)
40. Surgeons' rubber gloves.
41. Surgeons' latex gloves.
42. Structural fiber insulating board.
43. Grading of sulphonated oils.
44. Apple wraps.
45. Douglas fir plywood.
46. Hosiery lengths and sizes.
47. Marking of gold-filled and rolled-gold-plate articles other than watchcases.
48. Domestic burners for Pennsylvania anthracite (underfeed type).
49. Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.
50. Binders board for bookbinding and other purposes.
51. Marking articles made of silver in combination with gold.
52. Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze, and 50-percent mohair plain frieze).
53. Colors and finishes for cast stone.
54. Mattresses for hospitals.
55. Mattresses for institutions.
56. Oak flooring.
57. Book cloths, buckrams, and impregnated fabrics for bookbinding purposes *except* library bindings.
58. Woven elastic fabrics for use in overalls (overall elastic webbing).
59. Textiles--testing and reporting.
60. Hardwood dimension lumber.

CS No.

61. Venetian blinds (grade A, custom-made).
62. Colors for kitchen accessories.
63. Colors for bathroom accessories.
64. Walnut veneers.
65. Methods of analysis and of reporting fiber composition of textile products.
66. Marking of articles made wholly or in part of platinum.
67. Marking articles made of karat gold.
68. Liquid hypochlorite disinfectant, deodorant, and germicide.
69. Pine oil disinfectant.
70. Phenolic disinfectant (emulsifying type) (published with CS71).
71. Phenolic disinfectant (soluble type) (published with CS70).
72. Household insecticide (liquid spray type).
73. Old growth Douglas fir, Sitka spruce, and western hemlock standard stock doors.
74. Solid hardwood wall paneling.
75. Automatic mechanical draft oil burners designed for domestic installations.
76. Hardwood interior trim and molding.
77. Enameled cast-iron plumbing fixtures.
78. Ground-and-polished lenses for sun glasses (published with CS79).
79. Blown, drawn, and dropped lenses for sun glasses (published with CS78).
80. Electric direction signal systems other than semaphore type for commercial and other vehicles subject to special motor vehicle laws (after market).
81. Adverse-weather lamps for vehicles (after market).
82. Inner-controlled spotlamps for vehicles (after market).
83. Clearance, marker, and identification lamps for vehicles (after market).
84. Electric tail lamps for vehicles (after market).
85. Electric license-plate lamps for vehicles (after market).
86. Electric stop lamps for vehicles (after market).
87. Red electric warning lanterns.
88. Liquid burning flares.
89. Hardwood stair treads and risers.
90. Power cranes and shovels.
91. Factory-fitted Douglas fir entrance doors.
92. Cedar, cypress, and redwood tank stock lumber.
93. Portable electric drills (exclusive of high frequency).
94. Calking lead.
95. Lead pipe.
96. Lead traps and bends.
97. Electric supplementary driving and passing lamps for vehicles (after market).
98. Artists' oil paints.
99. Gas floor furnaces--gravity circulating type.
100. Porcelain-enameled steel utensils.
101. Flue-connected oil-burning space heaters equipped with vaporizing pot-type burners.
102. (Reserved for "Diesel and fuel-oil engines.")
103. Rayon jacquard velour (with or without other decorative yarn).
104. Warm-air furnaces equipped with vaporizingtype oil burners.
105. Mineral wool insulation for low temperatures.
106. Boys' pajama sizes (woven fabrics).
107. (Withdrawn.)
108. Treading automobile and truck tires.
109. Solid-fuel-burning forced-air furnaces.

CS No.

110. Tire repairs—vulcanized (passenger, truck, and bus tires).
111. Earthenware (vitreous-glazed) plumbing fixtures.
112. Homogeneous fiber wallboard.
113. Oil-burning floor furnaces equipped with vaporizing pot-type burners.
114. Hospital sheeting for mattress protection.
115. Porcelain-enameled tanks for domestic use.
116. Bituminized-fibre drain and sewer pipe.
117. Mineral wool insulation for heated industrial equipment.
118. Marking of jewelry and novelties of silver.
(E) 119.[1] Dial indicators (for linear measurements).
120. Standard stock ponderosa pine doors.
121. Women's slip sizes (woven fabrics).
122. Western softwood plywood.
123. Grading of diamond powder.
(E) 124.[1] Master disks.
125. Prefabricated homes.
126. Tank-mounted air compressors.
127. Self-contained mechanically refrigerated drinking water coolers.
128. Men's sport shirt sizes—woven fabrics (other than those marked with regular neckband sizes).
129. Materials for safety wearing apparel.
130. Color materials for art education in schools.
131. Industrial mineral wool products, all types—testing and reporting.
132. Hardware cloth.
133. Woven wire netting.
134. Cast aluminum cooking utensils (metal composition).
135. Men's shirt sizes (exclusive of work shirts).
136. Blankets for hospitals (wool, and wool and cotton).
137. Size measurements for men's and boys' shorts (woven fabrics).
138. Insect wire screening.
139. Work gloves.
140. Testing and rating convectors.
141. Sine bars, blocks, plates, and fixtures.
142. Automotive lifts.
143. Standard strength and extra strength perforated clay pipe.
144. Formed metal porcelain enameled sanitary ware.
145. Testing and rating hand-fired hot-water supply boilers.
146. Gowns for hospital patients.
147. Colors for molded urea plastics.
148. Men's circular flat- and rib-knit rayon underwear.
149. Utility type house dress sizes.
150. Hot rolled rail steel bars (produced from tee-section rails).

CS No.

151. Body measurements for the sizing of apparel for infants, babies, toddlers, and children (for the knit underwear industry).
152. Copper naphthenate wood-preservative (spray, brush, dip application).
153. Body measurements for the sizing of apparel for girls (for the knit underwear industry).
154. (Reserved for "Wire rope.")
155. Body measurements for the sizing of boys' apparel (knit underwear, shirts, trousers).
156. Colors for polystyrene plastics.
157. Ponderosa pine and sugar pine plywood.
158. Model forms for girls' apparel.
159. Sun glass lenses made of ground and polished plate glass, thereafter thermally curved.
160. Wood-fiber blanket insulation (for building construction).
161. "Standard grade" hot-dipped galvanized ware (coated after fabrication).
162. Tufted bedspreads.
163. Standard stock ponderosa pine windows, sash and screens.
164. (Reserved for "Concrete mixers.")
165. Zinc naphthenate wood-preservative (spray, brush, dip application).
166. Size measurements for men's work trousers.
167. Automotive and general service copper tube.
168. Polystyrene plastic wall tiles, and adhesives for their application.
169. Galvanized ware fabricated from *pregalvanized* steel sheets.
170. Cotton flour-bag (sack) towels.
171. Hardwood veneered doors.
172. Brass trim for water-closet bowls, tanks, and urinals (dimensional standards).
173. Heavy-duty alpha-cellulose-filled melamine tableware.
174. 140-F dry-cleaning solvent.
175. Circular-knitted gloves and mittens.
176. Prefinished wall panels.
177. Bituminous-coated metal septic tanks (single compartment, residential).
178. Testing and rating ventilating fans (axial and propeller types).
179. Installation of attic ventilation fans in residences.
180. Model forms for boys' apparel.
181. (Reserved.)
182. Latex foam mattresses for hospitals.
183. Boys' trouser size measurements.
184. Steel fence posts—field and line type (produced from hot-rolled steel sections).
185. Wool felt.

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice may secure copies of the above standards, while the supply lasts, by addressing the Commodity Standards Division, Office of Industry and Commerce, U. S. Department of Commerce, Washington 25, D. C.

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[1] Where "(E)" precedes the CS number, it indicates an emergency commercial standard, drafted under war conditions with a view toward early revision.

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